PGPUB-DOCUMENT-NUMBER: 20030050775

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030050775 A1

TITLE: TDVC-to-MELP transcoder

PUBLICATION-DATE: March 13, 2003

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APPL-NO: 09/ 991695

DATE FILED: November 26, 2001

RELATED-US-APPL-DATA:

   child 09991695 A1 20011126

   parent continuation-of 09822503 20010402 US PENDING

INT-CL: [07], G10L019/04

US-CL-PUBLISHED: 704/219

US-CL-CURRENT: 704/219

REFERENCE-FIGURES: 3

ABSTRACT:

The system and method of the present invention comprises a compressed domain
universal transcoder that transcodes a bit stream
representing frames of data
encoded according to a first compression standard to a bit
stream representing
frames of data according to a second compression standard.
The method includes

decoding a bit stream into a first set of parameters
compatible with a first
compression standard. Next, the first set of parameters
are transformed into a
second set of parameters compatible with a second
compression standard without
converting the first set of parameters to an analog or
digital waveform
representation. Lastly, the second set of parameters are
encoded into a bit
stream compatible with the second compression standard.

CLAIMS:

1. A method for transcoding a bit stream representing
frames of speech encoded
according to a first vocoder standard to a bit stream
representing frames of
speech encoded according to a second vocoder standard,
comprising: decoding a
bit stream into a first set of vocoder parameters
compatible with a first
vocoder standard; transforming the first set of vocoder
parameters into a
second set of vocoder parameters compatible with a second
vocoder standard
without converting the first set of vocoder parameters to
an analog or digital
waveform representation; and encoding the second set of
vocoder parameters
into a bit stream compatible with the second vocoder
standard.

2. The method of claim 1, wherein the decoding,
transforming, and encoding are
performed in real time.

3. The method of claim 1, wherein the first and second
sets of vocoder
parameters include spectral parameters, voicing parameters,
gain parameters,
and pitch parameters.

4. The method of claim 1, wherein the first and second
vocoders standards are
one of linear predictive coding (LPC), mixed excitation
linear predictive

(MELP) coding, and time domain voicing cutoff (TDVC).

5. The method of claim 1, further including: synthesizing the encoded bit
stream representing the second set of vocoder parameters into an analog speech
signal.

6. A method for transcoding data, comprising: receiving first parametric data
encoded according to a first encoding standard; and transforming the first
parametric data to second parametric data encoded according to a second
encoding standard, wherein the transforming occurs without converting the
parametric data to an analog or digital waveform representation.

7. The method of claim 6, wherein the first parametric data and second
parametric data represent encoded speech.

8. The method of claim 6, wherein the transforming is performed in real time.

9. The method of claim 6, wherein the first parametric data and second
parametric data include spectral parameters, voicing parameters, gain
parameters, and pitch parameters.

10. The method of claim 6, wherein the first and second encoding standards are
one of linear predictive coding (LPC), mixed excitation linear predictive
(MELP) coding, and time domain voicing cutoff (TDVC).

11. The method of claim 6, further comprising: encoding the second parametric
data into a bit stream according to the second encoding standard.

12. A method of converting data from a first compressed format to a second
compressed format, comprising: receiving a data stream in a first compressed
format; and transforming the data stream to a second

compressed format without
performing decompression of the data.

13. The method of claim 12, wherein the converting is
performed in real time.

14. The method of claim 12, wherein the data stream
represents parametric
data.

15. The method of claim 12, wherein the data stream in the
first compressed
format represents encoded speech.

16. The method of claim 12, wherein the data stream
contains spectral
parameters, voicing parameters, gain parameters, and pitch
parameters.

17. The method of claim 12, wherein the first and second
compressed formats
are one of linear predictive coding (LPC), mixed excitation
linear predictive
(MELP) coding, and time domain voicing cutoff (TDVC).

18. The method of claim 17, further comprising: encoding
the data stream into
a bit stream according to the second compressed format,
after transforming the
data stream to the second compressed format.

19. A transcoder for transcoding a bit stream representing
frames of speech
encoded according to a first vocoder standard to a bit
stream representing
frames of speech encoded according to a second vocoder
standard, comprising: a
decoder decoding a bit stream into a first set of vocoder
parameters compatible
with a first vocoder standard; a conversion unit
transforming the first set of
vocoder parameters into a second set of vocoder parameters
compatible with a
second vocoder standard without converting the first set of
vocoder parameters
to an analog or digital waveform representation; and an
encoder encoding the
second set of vocoder parameters into a bit stream

compatible with the second
vocoder standard.

20. A method for transcoding a bit stream representing frames of data encoded
according to a first compression standard to a bit stream representing frames
of data encoded according to a second compression standard, comprising:
decoding a bit stream into a first set of parameters compatible with a first
compression standard; transforming the first set of parameters into a second
set of parameters compatible with a second compression standard without
converting the first set of parameters to an analog or digital waveform
representation; and encoding the second set of parameters into a bit stream
compatible with the second compression standard.